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IS 7260 (1974): Ethyl Ester of Beta- Apo-8'-Carotenoic Acid, Food Grade [FAD 8: Food Additives]



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**IS : 7260 - 1974**

( Reaffirmed 1999 )

*Indian Standard*  
SPECIFICATION FOR  
ETHYL ESTER OF BETA-APO-8'-CAROTENOIC  
ACID, FOOD GRADE

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**INDIAN STANDARDS INSTITUTION**  
MANAK BHAVAN, 9, KAILASHDAS SHAH ZAFAR MARG  
NEW DELHI 110001

August 1974

# Indian Standard

## SPECIFICATION FOR ETHYL ESTER OF BETA-APO-8'-CAROTENOIC ACID, FOOD GRADE

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**Indian Standard**  
**SPECIFICATION FOR**  
**ETHYL ESTER OF BETA-APO-8'-CAROTENOIC**  
**ACID, FOOD GRADE**

**0. FOREWORD**

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 4 March 1974, after the draft finalized by the Food Additives Sectional Committee had been approved by the Agricultural and Food Products Division Council.

**0.2** This standard is one of a series of Indian Standards on natural food colours permitted under the Prevention of Food Adulteration Rules, 1955.

**0.3** While preparing this standard, considerable assistance has been derived from the 'Specification for identity and purity and toxicological evaluation of food colours', Report Series No. 38 B, published by FAO/WHO, Rome 1956.

**0.4 Description**

**0.4.1 Common Name** — Ethyl ester of beta-apo-8'-carotenoic acid.

**0.4.2 Colour** — Yellow to orange in oils and organic solvents.

**0.4.3 Class** — Carotenoid

**0.4.4 Colour Index**

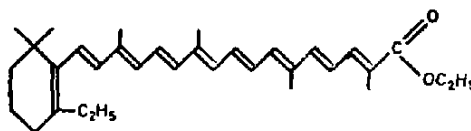
- a) DFG Lebensmittel — Orange 9; and
- b) EEC No. E 160 f.

**0.4.5 Chemical Name** — Trans-beta-apo-8'-carotenoic acid, ethyl ester.

**0.4.6 Empirical Formula** —  $C_{15}H_{44}O_2$ .

**0.4.7 Molecular Weight** — 460.70.

**0.4.8 Structural Formula**





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**0.5** For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS: 2-1960\*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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**1. SCOPE**

**1.1** This standard prescribes the requirements and methods of test for ethyl ester of beta-apo-8'-carotenoic acid, food grade.

**2. REQUIREMENTS**

**2.1 Physical Description** — Ethyl ester of beta-apo-8'-carotenoic acid shall be in the form of red crystals. The material for commerce may be solution in oil, fat or organic solvent or water-dispersible forms, such as, powders, granules or capsules, and shall be yellow to orange in colour.

**2.2 Solubility**

**2.2.1** Material is soluble in vegetable oils and chloroform.

**2.2.2** Material is insoluble in water and ethanol.

**2.3 Identification**

**2.3.1 Melting Range** — The melting range shall be between 134°C and 138°C.

**2.3.2 Absorption** — In solution of cyclohexane the absorbance ratio A<sub>475</sub>/A<sub>449</sub> shall be between 0.82 and 0.86.

**2.3.3** The colour of a solution of the material in acetone shall disappear after successive addition of 5 percent solution of sodium nitrite and sulphuric acid (1 N).

**2.3.4** A solution of the material in chloroform shall turn blue when excess of antimony trichloride (Garr-Price) reagent is added.

**2.4** The material shall also conform to the requirements given in Table 1.

**3. PACKING AND MARKING**

**3.1 Packing** — The material shall be packed either in glass containers or in metal or carboard containers suitably lined with polyethylene.

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\*Rules for rounding off numerical values (revised).

TABLE 1 REQUIREMENTS FOR ETHYL ESTER OF BETA-APO-8'-CAROTENOIC ACID

( Clause 2.4 )

Sl. No.	CHARACTERISTIC	REQUIREMENT	METHOD OF TEST, REF TO	
			Appendix	Indian Standard
(1)	(2)	(3)	(4)	(5)
i)	Purity as $C_{55}H_{84}O_6$ percent by mass, <i>Min</i>	96	A	—
ii)	Sulphated ash, percent by mass, <i>Max</i>	0.1	—	Appendix B of IS : 6386-1971*
iii)	Arsenic ( as As ), mg/kg, <i>Max</i>	3.0	—	Cl 8 of IS : 1699 ( Part I )-1960†
iv)	Lead ( as Pb ), mg/kg, <i>Max</i>	10.0	—	Cl 9 of IS : 1699 ( Part I )-1960†

\*Specification for beta-apo-8'-carotenal, food grade.

†Methods of sampling and test for coal tar food colours, Part I.

**3.2 Marking** — Each container shall be labelled with the following information:

- Name and type of the material,
- Name and address of the manufacturer,
- Minimum net mass,
- Batch or code number, and
- A statement to the effect that the material should be kept in a cool place and in case of glass containers away from light.

**3.2.1** The containers may also be marked with the ISI Certification Mark.

**NOTE** — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution ( Certification Marks ) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

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#### 4. SAMPLING

4.1 Representative samples of the material shall be drawn as prescribed in Appendix B of IS : 3841-1966\*.

#### 5. TESTS

5.1 Tests shall be carried out as prescribed in col 4 and 5 of Table 1.

5.2 **Quality of Reagents** — Unless specified otherwise, pure chemicals and distilled water (*see* IS : 1070-1960†) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the test results.

### APPENDIX A

[ Table 1, Item (i) ]

#### DETERMINATION OF PURITY

A-1. The method as given in Appendix A of IS:6386-1971‡ shall be adopted with the following modifications:

- a) Measure spectrophotometrically the extinction at the absorption maximum (about 449 nm) comparing it with the solvent (cyclohexane) and utilizing cuvettes of 1 cm path-length. Calculate the content using  $E(1\%, 1\text{ cm}) = 2\,550$  for pure ethyl ester of beta-apo-8'-carotenoic acid.
- b) *In Method for Water-Dispersible Materials* — Measure the extinction at the absorption maximum (about 449 nm) with cyclohexane as reference solvent and utilizing cuvettes of 1 cm path-length. Calculate the content of ethyl ester of beta-apo-8'-carotenoic acid, using  $E(1\%, 1\text{ cm}) = 2\,320$ . This theoretical value corresponds to the proportion of isomers normally present in these water-dispersible products.

\*Specification for  $\beta$ -carotene.

†Specification for water, distilled quality (*revised*).

‡Specification for beta-apo-8'-carotenal, food grade.

## INDIAN STANDARDS

### ON

### FOOD ADDITIVES

#### IS :

1694-1960	Tartrazine
1695-1960	Sunset yellow FCF
1696-1960	Amaranth
1697-1960	Erythrosine
1698-1960	Indigo carmine
1699 ( Part I )-1960	Methods of sampling and test for coal tar food colours, Part I
1699 ( Part II )-1960	Methods of sampling and test for coal tar food colours, Part II
2557-1963	Annatto colour for food products
2558-1963	Ponceau 4R
2923-1964	Carmoisine
2924-1963	Fast red E
3827-1966	Riboflavin
3841-1966	$\beta$ -Carotene
4446-1967	Chlorophyll
4447-1967	Sodium benzoate, food grade
4448-1967	Benzoic acid, food grade
4467-1967	Caramel
4750-1968	Sorbitol, food grade
4751-1968	Potassium metabisulphite, food grade
4752-1968	Sodium metabisulphate, food grade
4753-1968	Sodium nitrate, food grade
4818-1968	Sorbic acid, food grade
5055-1969	Lecithin, food grade
5056-1969	Common names for coal tar food colours
5057-1969	Potassium nitrite, food grade
5058-1969	Sodium titrate, food grade
5191-1969	Sodium alginate, food grade
5306-1969	Sodium carboxymethyl cellulose, food grade
5342-1969	Ascorbic acid, food grade
5343-1969	Butylated hydroxyanisole, food grade
5344-1969	Butylated hydroxytoluene, food grade
5345-1969	Sodium saccharin, food grade
5346-1969	Coal tar food colour preparations
5707-1970	Agar, food grade
5708-1970	Sodium tartrate, food grade
5709-1970	Calcium saccharin, food grade
5719-1970	Gelatin, food grade
6022-1971	Fast green FCF, food grade
6029-1971	Wool green BS, food grade
6030-1971	Sodium propionate, food grade
6031-1971	Calcium propionate, food grade
6120-1971	Method of test for total dye content in food colour preparations
6385-1971	Saccharin, food grade
6386-1971	Beta-apo-8'-carotenal, food grade
6405-1971	Canthaxanthine, food grade
6406-1971	Brilliant blue, FCF, food grade
6793-1972	Fumaric acid, food grade
6794-1972	Dodecyl gallate, food grade
6795-1972	Acacia ( arabic ) gum, food grade
6796-1972	Propyl gallate, food grade
6797-1972	Methyl ester of Beta-apo-8'-carotenoid acids
6798-1972	Octyl gallate, food grade

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Cocoa products	Pesticidal formulations
Coffee and its products	Pesticides, technical grade and general
Dairy equipment	Propagation materials
Dairy industry layout plans	Regulated market yards
Dairy industry methods of test	Sensory evaluation
Dairy laboratory apparatus	Spices and condiments
Dairy products	Starch derived products
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